

=> file caplus; d que 11  
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FILE COVERS 1907 - 16 Jun 2005 VOL 142 ISS 25  
FILE LAST UPDATED: 15 Jun 2005 (20050615/ED)

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L1 10 SEA FILE=CAPLUS ABB=ON PLU=ON "BALABAN N"/AU

=> file medline; d que 13; d que 16  
FILE 'MEDLINE' ENTERED AT 14:54:55 ON 16 JUN 2005

FILE LAST UPDATED: 15 JUN 2005 (20050615/UP). FILE COVERS 1950 TO DATE.

On December 19, 2004, the 2005 MeSH terms were loaded.

The MEDLINE reload for 2005 is now available. For details enter HELP RLOAD at an arrow prompt (=>). See also:

<http://www.nlm.nih.gov/mesh/>  
[http://www.nlm.nih.gov/pubs/techbull/nd04/nd04\\_mesh.html](http://www.nlm.nih.gov/pubs/techbull/nd04/nd04_mesh.html)

OLDMEDLINE now back to 1950.

MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the MeSH 2005 vocabulary.

This file contains CAS Registry Numbers for easy and accurate substance identification.

L2 21 SEA FILE=MEDLINE ABB=ON PLU=ON "BALABAN N"/AU  
L3 8 SEA FILE=MEDLINE ABB=ON PLU=ON L2 AND STAPH?

L5 12 SEA FILE=MEDLINE ABB=ON PLU=ON "BALABAN NAOMI"/AU  
L6 10 SEA FILE=MEDLINE ABB=ON PLU=ON L5 AND STAPH?

=> s 13 or 16  
L12 18 L3 OR L6

=> file embase; d que 18  
FILE 'EMBASE' ENTERED AT 14:55:14 ON 16 JUN 2005  
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FILE COVERS 1974 TO 9 Jun 2005 (20050609/ED)

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L7 42 SEA FILE=EMBASE ABB=ON PLU=ON "BALABAN N"/AU  
L8 21 SEA FILE=EMBASE ABB=ON PLU=ON L7 AND STAPH?

=> file biosis; d que 110  
FILE 'BIOSIS' ENTERED AT 14:55:26 ON 16 JUN 2005  
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FILE COVERS 1969 TO DATE.  
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT  
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 10 June 2005 (20050610/ED)

FILE RELOADED: 19 October 2003.

L9 45 SEA FILE=BIOSIS ABB=ON PLU=ON "BALABAN N"/AU OR "BALABAN  
NAOMI"/AU OR "BALABAN NAONU"/AU  
L10 20 SEA FILE=BIOSIS ABB=ON PLU=ON L9 AND STAPH?

=> file wpix; d que 111  
FILE 'WPIX' ENTERED AT 14:55:33 ON 16 JUN 2005  
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FILE LAST UPDATED: 13 JUN 2005 <20050613/UP>  
MOST RECENT DERWENT UPDATE: 200537 <200537/DW>  
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L11 4 SEA FILE=WPIX ABB=ON PLU=ON "BALABAN N"/AU

=> dup rem 112 11 18 110 111  
FILE 'MEDLINE' ENTERED AT 14:55:49 ON 16 JUN 2005

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PROCESSING COMPLETED FOR L8  
PROCESSING COMPLETED FOR L10  
PROCESSING COMPLETED FOR L11

L13 35 DUP REM L12 L1 L8 L10 L11 (38 DUPLICATES REMOVED)  
ANSWERS '1-18' FROM FILE MEDLINE  
ANSWERS '19-25' FROM FILE CAPLUS  
ANSWERS '26-28' FROM FILE EMBASE  
ANSWERS '29-31' FROM FILE BIOSIS  
ANSWERS '32-35' FROM FILE WPIX

=> d ibib ed ab 113 1-31; d ibib ab abex 113 32-35

L13 ANSWER 1 OF 35	MEDLINE on STN	DUPLICATE 1
ACCESSION NUMBER:	2005004884	IN-PROCESS
DOCUMENT NUMBER:	PubMed ID: 15629527	
TITLE:	RNAlII-inhibiting peptide improves efficacy of clinically used antibiotics in a murine model of <b>staphylococcal</b> sepsis.	
AUTHOR:	Giacometti Andrea; Cirioni Oscar; Ghiselli Roberto; Dell'Acqua Giorgio; Orlando Fiorenza; D'Amato Giuseppina; Mocchegiani Federico; Silvestri Carmela; Del Prete Maria Simona; Rocchi Marco; <b>Balaban Naomi</b> ; Saba Vittorio; Scalise Giorgio	
CORPORATE SOURCE:	Institute of Infectious Diseases and Public Health, Universita Politecnica delle Marche, Ancona, Italy.	
SOURCE:	Peptides, (2005 Feb) 26 (2) 169-75. Journal code: 8008690. ISSN: 0196-9781.	
PUB. COUNTRY:	United States	
DOCUMENT TYPE:	Journal; Article; (JOURNAL ARTICLE)	

LANGUAGE: English  
 FILE SEGMENT: NONMEDLINE; IN-PROCESS; NONINDEXED; Priority Journals  
 ENTRY DATE: Entered STN: 20050105  
                  Last Updated on STN: 20050202  
 ED   Entered STN: 20050105  
       Last Updated on STN: 20050202  
 AB   RNAIII-inhibiting peptide (RIP, YSPWTNF-NH2) is a quorum-sensing peptide inhibitor that prevents **Staphylococcus aureus** toxin production and biofilm formation. A mouse sepsis model was used to test the efficacy of RIP alone or in combination with conventional antibiotics in suppressing *S. aureus*-induced sepsis. Mice were injected intravenously with 3.0x10(6)CFU of *S. aureus* ATCC 25923 or with 3.0x10(6)CFU of *S. aureus* strain Smith diffuse. All animals were randomized to receive intravenously isotonic sodium chloride solution as a control, or 20 mg/kg RIP alone or combined with 20 mg/kg cefazolin, 10 mg/kg imipenem, or 10 mg/kg vancomycin immediately or 6 h after bacterial challenge. Main outcome measures were bacteremia and lethality. All compounds reduced lethality when compared to controls. Although, in general combined-treated groups had significant lower bacterial counts when associated to singly-treated groups only the combination between RIP and vancomycin with respect to cefazolin gave a statistically significant decrease in the lethality rate. Lowest lethality rates (10%) and bacteremia (<10(2)CFU/ml) were obtained when RIP was administered in combination with vancomycin. Because RIP can be synergistic with current antibiotic therapies and help to reduce *S. aureus* exotoxins production, it can be considered a promising agent to associate with antibiotics for further clinical research into treatment of sepsis.

L13 ANSWER 2 OF 35           MEDLINE on STN                   DUPLICATE 2  
 ACCESSION NUMBER: 2004187687           MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 14726534  
 TITLE: Quorum sensing in **Staphylococci** is regulated via phosphorylation of three conserved histidine residues.  
 AUTHOR: Gov Yael; Borovok Ilya; Korem Moshe; Singh Vineet K; Jayaswal Radheshyam K; Wilkinson Brian J; Rich Stephen M; Balaban Naomi  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, George S. Wise Faculty of Life Sciences, Tel Aviv University, Tel Aviv 69978, Israel.  
 CONTRACT NUMBER: AI43970 (NIAID)  
 SOURCE: Journal of biological chemistry, (2004 Apr 9) 279 (15) 14665-72. Electronic Publication: 2004-01-14.  
 Journal code: 2985121R. ISSN: 0021-9258.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 OTHER SOURCE: GENBANK-AJ489447; GENBANK-AJ489448; GENBANK-AJ489449; GENBANK-AJ489450  
 ENTRY MONTH: 200406  
 ENTRY DATE: Entered STN: 20040416  
                  Last Updated on STN: 20040602  
                  Entered Medline: 20040601  
 ED   Entered STN: 20040416  
       Last Updated on STN: 20040602  
       Entered Medline: 20040601  
 AB   **Staphylococcus aureus** cause infections by producing toxins, a process regulated by cell-cell communication (quorum sensing) through the histidine-phosphorylation of the target of RNAIII-activating protein

(TRAP). We show here that TRAP is highly conserved in **staphylococci** and contains three completely conserved histidine residues (His-66, His-79, His-154) that are phosphorylated and essential for its activity. This was tested by constructing a TRAP(-) strain with each of the conserved histidine residues changed to alanine by site-directed mutagenesis. All mutants were tested for pathogenesis *in vitro* (expression of RNAlII and hemolytic activity) and *in vivo* (murine cellulitis model). Results show that RNAlII is not expressed in the TRAP(-) strain, that it is non hemolytic, and that it does not cause disease *in vivo*. These pathogenic phenotypes could be rescued in the strain containing the recovered *trap*, confirming the importance of TRAP in *S. aureus* pathogenesis. The phosphorylation of TRAP mutated in any of the conserved histidine residues was significantly reduced, and mutants defective in any one of these residues were non-pathogenic *in vitro* or *in vivo*, whereas those mutated in a non-conserved histidine residue (His-124) were as pathogenic as the wild type. These results confirm the importance of the three conserved histidine residues in TRAP activity. The phosphorylation pattern, structure, and gene organization of TRAP deviates from signaling molecules known to date, suggesting that TRAP belongs to a novel class of signal transducers.

L13 ANSWER 3 OF 35 MEDLINE on STN DUPLICATE 3  
 ACCESSION NUMBER: 2004313191 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 15215107  
 TITLE: A chimeric peptide composed of a dermaseptin derivative and an RNA III-inhibiting peptide prevents graft-associated infections by antibiotic-resistant **staphylococci**.  
 AUTHOR: Balaban Naomi; Gov Yael; Giacometti Andrea;  
 Cirioni Oscar; Ghiselli Roberto; Mocchegiani Federico;  
 Orlando Fiorenza; D'Amato Giuseppina; Saba Vittorio;  
 Scalise Giorgio; Bernes Sabina; Mor Amram  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel.  
 SOURCE: Antimicrobial agents and chemotherapy, (2004 Jul) 48 (7) 2544-50.  
 Journal code: 0315061. ISSN: 0066-4804.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200409  
 ENTRY DATE: Entered STN: 20040625  
 Last Updated on STN: 20040908  
 Entered Medline: 20040907  
 ED Entered STN: 20040625  
 Last Updated on STN: 20040908  
 Entered Medline: 20040907  
 AB **Staphylococcal** bacteria are a prevalent cause of infections associated with foreign bodies and indwelling medical devices. Bacteria are capable of escaping antibiotic treatment through encapsulation into biofilms. RNA III-inhibiting peptide (RIP) is a heptapeptide that inhibits **staphylococcal** biofilm formation by obstructing quorum-sensing mechanisms. K(4)-S4(1-13)(a) is a 13-residue dermaseptin derivative (DD(13)) believed to kill bacteria via membrane disruption. We tested each of these peptides as well as a hybrid construct, DD(13)-RIP, for their ability to inhibit bacterial proliferation and suppress quorum sensing *in vitro* and for their efficacy in preventing **staphylococcal** infection in a rat graft infection model with methicillin-resistant **Staphylococcus aureus** (MRSA) or *S.*

epidermidis (MRSE). In vitro, proliferation assays demonstrated that RIP had no inhibitory effect, while DD(13)-RIP and DD(13) were equally effective, and that the chimeric peptide but not DD(13) was slightly more effective than RIP in inhibiting RNA III synthesis, a regulatory RNA molecule important for **staphylococcal** pathogenesis. In vivo, the three peptides reduced graft-associated bacterial load in a dose-dependent manner, but the hybrid peptide was most potent in totally preventing **staphylococcal** infections at the lowest dose. In addition, each of the peptides acted synergistically with antibiotics. The data indicate that RIP and DD(13) act in synergy by attacking bacteria simultaneously by two different mechanisms. Such a chimeric peptide may be useful for coating medical devices to prevent drug-resistant **staphylococcal** infections.

L13 ANSWER 4 OF 35 MEDLINE on STN DUPLICATE 4  
 ACCESSION NUMBER: 2004599314 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 15572191  
 TITLE: BisEDT and RIP act in synergy to prevent graft infections by resistant **staphylococci**.  
 AUTHOR: Domenico Philip; Gurzenda Ellen; Giacometti Andrea; Cirioni Oscar; Ghiselli Roberto; Orlando Fiorenza; Korem Moshe; Saba Vittorio; Scalise Giorgio; **Balaban Naomi**  
 CORPORATE SOURCE: Cardio Pulmonary Research Institute, Winthrop-University Hospital, SUNY Stony Brook School of Medicine, Mineola 11501, New York, NY, USA.. pdomenico@winthrop.org  
 SOURCE: Peptides, (2004 Dec) 25 (12) 2047-53.  
 Journal code: 8008690. ISSN: 0196-9781.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200506  
 ENTRY DATE: Entered STN: 20041202  
 Last Updated on STN: 20050608  
 Entered Medline: 20050607  
 ED Entered STN: 20041202  
 Last Updated on STN: 20050608  
 Entered Medline: 20050607  
 AB **Staphylococci** are a major cause of infections associated with indwelling medical devices. Biofilm formation on these devices adds to the antibiotic resistance seen among clinical isolates. RNAIII-inhibiting peptide (RIP) is a heptapeptide that inhibits **staphylococcal** pathogenesis, including biofilm formation, by obstructing quorum sensing mechanisms. Bismuth ethanedithiol (BisEDT) also prevents biofilm formation at subinhibitory concentrations. RIP and BisEDT were combined to prevent infections in a rat graft model, using antibiotic sensitive and resistant strains of **Staphylococcus aureus** and **Staphylococcus epidermidis**. BisEDT, RIP, or rifampin, or their combinations reduced the graft associated bacterial load over seven days. BisEDT-RIP was the best combination, reducing bacterial load to undetectable levels. BisEDT-RIP may prove useful for coating medical devices to prevent **staphylococcal** infections.

L13 ANSWER 5 OF 35 MEDLINE on STN DUPLICATE 5  
 ACCESSION NUMBER: 2004313660 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 15216467  
 TITLE: Suppression of drug-resistant **Staphylococcal** Infections by the quorum-sensing inhibitor RNAIII-inhibiting peptide.

AUTHOR: Dell'Acqua Giorgio; Giacometti Andrea; Cirioni Oscar;  
 Ghiselli Roberto; Saba Vittorio; Scalise Giorgio; Gov Yael;  
**Balaban Naomi**  
 CORPORATE SOURCE: BalaPharm International, Grafton, Massachusetts, USA.  
 CONTRACT NUMBER: AI54858 (NIAID)  
 SOURCE: Journal of infectious diseases, (2004 Jul 15) 190 (2)  
 318-20. Electronic Publication: 2004-06-24.  
 Journal code: 0413675. ISSN: 0022-1899.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals  
 ENTRY MONTH: 200408  
 ENTRY DATE: Entered STN: 20040625  
 Last Updated on STN: 20040814  
 Entered Medline: 20040813  
 ED    Entered STN: 20040625  
 Last Updated on STN: 20040814  
 Entered Medline: 20040813  
 AB    **Staphylococcus aureus** and *S. epidermidis* are major causes of infection related to biofilm formed on indwelling medical devices. Such infections are common causes of morbidity and mortality and, because of biofilm resistance to antibiotics, are difficult to treat. The RNAIII-inhibiting peptide (RIP) (YSPWTNF-NH<sub>2</sub>) inhibits the pathogenesis of **staphylococci** by disrupting bacterial cell-cell communication (known as "quorum sensing"). Using a vascular-graft rat model, we show that RIP, applied locally and systemically, can completely inhibit drug-resistant *S. aureus* and *S. epidermidis* biofilms. The present study provides the first direct demonstration that interfering with cell-cell communication by use of a quorum-sensing inhibitor can eliminate medical device-associated **staphylococcal** infections. We suggest that medical devices could be coated with RIP to prevent infections, including those by antibiotic-resistant **staphylococcal** strains.

L13 ANSWER 6 OF 35      MEDLINE on STN                            DUPLICATE 6  
 ACCESSION NUMBER: 2003263712      MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12760879  
 TITLE: RNA III inhibiting peptide inhibits in vivo biofilm formation by drug-resistant **Staphylococcus aureus**.  
 AUTHOR: Giacometti Andrea; Cirioni Oscar; Gov Yael; Ghiselli Roberto; Del Prete Maria Simona; Mocchegiani Federico; Saba Vittorio; Orlando Fiorenza; Scalise Giorgio; **Balaban Naomi**; Dell'Acqua Giorgio  
 CORPORATE SOURCE: Institute of Infectious Diseases and Public Health, Ancona, Italy.  
 SOURCE: Antimicrobial agents and chemotherapy, (2003 Jun) 47 (6)  
 1979-83.  
 Journal code: 0315061. ISSN: 0066-4804.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200310  
 ENTRY DATE: Entered STN: 20030608  
 Last Updated on STN: 20031008  
 Entered Medline: 20031007  
 ED    Entered STN: 20030608  
 Last Updated on STN: 20031008

AUTHOR(S): **Balaban, N.; Karahan, Z. C.; Koca, Y.; Guvener, E.**  
 CORPORATE SOURCE: **Mikrobiyoloji ve Klinik Mikrobiyoloji Bolumu, Ankara Numune Egitim ve Arastirma Hastanesi, Ankara, Turk.**  
 SOURCE: **Mikrobiyoloji Bulteni (2001), 35(2), 211-218**  
 CODEN: MIBUBI; ISSN: 0374-9096  
 PUBLISHER: **Ankara Mikrobiyoloji Dernegi**  
 DOCUMENT TYPE: **Journal**  
 LANGUAGE: **Turkish**  
 ED Entered STN: 03 Jul 2001  
 AB Clostridium difficile is the major cause of antibiotic-associated diarrhea and pseudomembranous colitis. The methods to be used in the diagnosis of these diseases are still controversial. In this study we aimed to find the most reliable approach to the diagnosis of C. difficile-associated infections by using two culture [direct inoculation onto cyclocerine-cefoxitin-fructose agar (CCFA) and inoculation onto blood agar after alc. shock enrichment] and two toxin detection methods [enzyme immunoassay (EIA) and immunochromatog. test (ICT)], all of which can be used in all labs. When we evaluated the diarrheal stool samples of 41 patients and normal stool samples of 40 healthy controls and accepted the culture on CCFA as the "gold standard", the sensitivity and specificity of the performed tests were found as follows: Alc. shock enrichment 100% and 100%, EIA 100% and 97%, ICT 100% and 97%, resp. These results show that all of these methods can be used reliably in all labs. and when they are appraised with the clin. findings, the diagnosis of C. difficile associated infections can be made more accurately.

L13 ANSWER 23 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1998:797953 CAPLUS  
 DOCUMENT NUMBER: 130:135135  
 TITLE: H2O2 acts on cellular membranes to generate ceramide signaling and initiate apoptosis in tracheobronchial epithelial cells  
 AUTHOR(S): Goldkorn, T.; **Balaban, N.; Shannon, M.; Chea, V.; Matsukuma, K.; Gilchrist, D.; Wang, H.; Chan, C.**  
 CORPORATE SOURCE: Respiratory Signal Transduction, Department of Medicine, Davis School of Medicine, University of California, Davis, CA, 95616, USA  
 SOURCE: Journal of Cell Science (1998), 111(21), 3209-3220  
 CODEN: JNCSAI; ISSN: 0021-9533  
 PUBLISHER: Company of Biologists Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 22 Dec 1998  
 AB Hydrogen peroxide (H2O2) is an inflammatory oxidant which contributes to the pathogenesis of chronic diseases such as lung injury of the respiratory tract, atherosclerosis and cancer. The mechanisms and target sites of this reactive oxidant are mainly unknown. So far there are opposing reports as to whether reactive oxidants inhibit or promote apoptosis. We activated the death pathway in primary tracheobronchial epithelial (TBE) cells with H2O2 (20-200  $\mu$ M) and observed the morphol. changes, DNA laddering patterns, and DNA fragmentation associated with apoptosis. Elevation of ceramide with exogenous ceramide analogs was sufficient for apoptosis induction with the same characteristics and in the same time frame. H2O2 induced rapid sphingomyelin hydrolysis to ceramide, the elevation of which paralleled the induction of apoptosis. Furthermore, H2O2 acted directly on TBE cells membrane prepns. devoid of nuclei, stimulating sphingomyelin hydrolysis through a neutral Mg<sup>2+</sup>

dependent sphingomyelinase (SMase). These data suggest that the formation of ceramide from sphingomyelin in the plasma membrane is a key event in H<sub>2</sub>O<sub>2</sub>-induced apoptosis in tracheobronchial epithelial cells.

REFERENCE COUNT: 68 THERE ARE 68 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 24 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1991:97410 CAPLUS  
 DOCUMENT NUMBER: 114:97410  
 TITLE: The association of glycosomal enzymes and microtubules: a physiological phenomenon or an experimental artifact?  
 AUTHOR(S): Balaban, N.; Goldman, R.  
 CORPORATE SOURCE: Dep. Membrane Res., Weizmann Inst. Sci., Rehovot, 76100, Israel  
 SOURCE: Experimental Cell Research (1990), 191(2), 219-26  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 23 Mar 1991  
 AB Subpellicular microtubules isolated from *Trypanosoma brucei* parasites were fractionated on a phosphocellulose column, and the trypanosomal p52 microtubule-associated protein was eluted along with two other proteins of 41 and 36 kDa. These proteins were found to be the glycosomal enzymes aldolase (41 kDa) and glyceraldehyde-3-phosphate dehydrogenase (GAPDH, 36 kDa) by enzyme activity, antibody cross-reaction, and N-terminal sequencing. These enzymes were copptd. with tubulin in the presence of taxol, and aldolase had the capacity to polymerize tubulin and cross-link microtubules. Immunolocalization of anti-aldolase and anti-GAPDH antibodies did not show an interaction between these enzymes and the subpellicular microtubules. The question whether the copurifn. of aldolase and the subpellicular microtubules could reflect a physiol. phenomenon or may be an exptl. artifact is discussed.

L13 ANSWER 25 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1990:17963 CAPLUS  
 DOCUMENT NUMBER: 112:17963  
 TITLE: Isolation of a subpellicular microtubule protein from *Trypanosoma brucei* that mediates crosslinking of microtubules  
 AUTHOR(S): Balaban, N.; Waithaka, H. K.; Njogu, A. R.; Goldman, R.  
 CORPORATE SOURCE: Dep. Membr. Res., Weizmann Inst. Sci., Rehovot, 76100, Israel  
 SOURCE: Cell Motility and the Cytoskeleton (1989), 14(3), 393-400  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ED Entered STN: 21 Jan 1990  
 AB Subpellicular microtubules were isolated from bloodstream *T. brucei* parasites by use of a zwitterion detergent. These cold-stable structures were solubilized by a high ionic strength salt solution, and the soluble proteins that contained tubulin along with several other proteins were further fractionated by Mono S cation-exchange column chromatog. Two distinct peaks were eluted containing 1 protein each, which had an apparent mol. weight of 52 kDa and 53 kDa (Mr was determined by SDS-PAGE). Only the 52-kDa protein showed specific tubulin-binding properties, which were

demonstrated by exposure of nitrocellulose-bound trypanosome proteins to brain tubulin. When this protein was added to brain tubulin in the presence of taxol and GTP, microtubule bundles were formed with regular crosslinks between the parallel closely packed microtubules. The crosslinks were .apprx.7.2 nm apart (center to center). Under the same conditions, but with the 53-kDa protein or without trypanosome-derived proteins, brain tubulin polymerized to single microtubules. It is thus suggested that the unique structural organization of the subpellicular microtubules is dictated by specific parasite proteins and is not an inherent property of the polymerizing tubulin. The in vitro reconstituted microtubule bundles are strikingly similar to the subpellicular microtubule network of the parasite.

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ACCESSION NUMBER: 2003466187 EMBASE  
TITLE: Erratum: Regulation of **Staphylococcus aureus**  
pathogenesis via target of RNAIII-activating protein (TRAP)  
(Journal of Biological Chemistry (2001) 276 (2658-2667)).  
AUTHOR: **Balaban N.**; Goldkorn T.; Gov Y.; Hirshberg M.;  
Koyfman N.; Matthews H.R.; Nhan R.T.; Singh B.; Uziel O.  
SOURCE: Journal of Biological Chemistry, (8 Jun 2001) Vol. 276, No.  
23, pp. 20803.  
ISSN: 0021-9258 CODEN: JBCHA3  
COUNTRY: United States  
DOCUMENT TYPE: Journal; Errata  
FILE SEGMENT: 029 Clinical Biochemistry  
LANGUAGE: English  
ENTRY DATE: Entered STN: 20040105  
Last Updated on STN: 20040105  
ED Entered STN: 20040105  
Last Updated on STN: 20040105

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ACCESSION NUMBER: 2003458285 EMBASE  
TITLE: Erratum: Regulation of **Staphylococcus aureus**  
pathogenesis via target of RNAIII-activating protein (TRAP)  
(Journal of Biological Chemistry (2001) 276 (2658-2667)).  
AUTHOR: **Balaban N.**; Goldkorn T.; Gov Y.; Hirshberg M.;  
Koyfman N.; Matthews H.R.; Nhan R.T.; Singh B.; Uziel O.  
SOURCE: Journal of Biological Chemistry, (13 Apr 2001) Vol. 276,  
No. 15, pp. 12476.  
ISSN: 0021-9258 CODEN: JBCHA3  
COUNTRY: United States  
DOCUMENT TYPE: Journal; Errata  
FILE SEGMENT: 029 Clinical Biochemistry  
LANGUAGE: English  
ENTRY DATE: Entered STN: 20031204  
Last Updated on STN: 20031204  
ED Entered STN: 20031204  
Last Updated on STN: 20031204

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ACCESSION NUMBER: 1999001983 EMBASE  
TITLE: An experimental vaccine that targets **staphylococcal**  
virulence: Response from Balaban.  
AUTHOR: **Balaban N.**

CORPORATE SOURCE: N. Balaban, Dept. of Medical Pathology, University of California, Davis, CA 95616, United States  
 SOURCE: Trends in Microbiology, (1998) Vol. 6, No. 12, pp. 463.  
 Refs: 6  
 ISSN: 0966-842X CODEN: TRMIEA  
 PUBLISHER IDENT.: S 0966-842X(98)01423-1  
 COUNTRY: United Kingdom  
 DOCUMENT TYPE: Journal; Note  
 FILE SEGMENT: 004 Microbiology  
 037 Drug Literature Index  
 LANGUAGE: English  
 ENTRY DATE: Entered STN: 19990122  
 Last Updated on STN: 19990122  
 ED Entered STN: 19990122  
 Last Updated on STN: 19990122

L13 ANSWER 29 OF 35 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN  
 ACCESSION NUMBER: 2004:181752 BIOSIS  
 DOCUMENT NUMBER: PREV200400185038  
 TITLE: Target of RNAIII activating protein (TRAP).  
 AUTHOR(S): **Balaban, Naomi** [Inventor, Reprint Author];  
 Goldkorn, Tzipora [Inventor]  
 CORPORATE SOURCE: Davis, CA, USA  
 ASSIGNEE: The Regents of the University of California  
 PATENT INFORMATION: US 6689878 20040210  
 SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Feb 10 2004) Vol. 1279, No. 2.  
<http://www.uspto.gov/web/menu/patdata.html>. e-file.  
 ISSN: 0098-1133 (ISSN print).  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 ENTRY DATE: Entered STN: 7 Apr 2004  
 Last Updated on STN: 7 Apr 2004  
 ED Entered STN: 7 Apr 2004  
 Last Updated on STN: 7 Apr 2004  
 AB The present invention is directed to a protein isolated from *S. aureus* that is the target of RAP, called TRAP, which is characterized by a molecular weight of about 21 KDa, is capable of being phosphorylated by RAP, and comprises an amino acid sequence of SEQ ID NO:2. In addition, the present invention is directed towards an antibody immunoreactive with TRAP that is preferably a monoclonal antibody or a humanized antibody but may be a polyclonal antibody. The invention provides a method of treating *S. aureus* infection by administering such a TRAP-inhibiting agent. The invention also features methods for identifying compounds that inhibit TRAP activity and/or inhibit TRAP-RAP interaction.

L13 ANSWER 30 OF 35 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN  
 ACCESSION NUMBER: 2004:122979 BIOSIS  
 DOCUMENT NUMBER: PREV200400126781  
 TITLE: AFM study of **Staphylococcus aureus** adhesion properties.  
 AUTHOR(S): Bitler, Arkady [Reprint Author]; **Balaban, Naomi**  
 CORPORATE SOURCE: Physiology and Pharmacology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel  
 SOURCE: Biophysical Journal, (January 2004) Vol. 86, No. 1, pp. 152a. print.  
 Meeting Info.: 48th Annual Meeting of the Biophysical

Society. Baltimore, MD, USA. February 14-18, 2004.  
 Biophysical Society.

ISSN: 0006-3495 (ISSN print).

DOCUMENT TYPE: Conference; (Meeting)  
 Conference; Abstract; (Meeting Abstract)

LANGUAGE: English

ENTRY DATE: Entered STN: 3 Mar 2004

Last Updated on STN: 3 Mar 2004

ED Entered STN: 3 Mar 2004  
 Last Updated on STN: 3 Mar 2004

AB Gram-positive bacteria **Staphylococcus aureus** form biofilms through the expression of multiple adhesion molecules, leading to medical-device associated infections. The heptapeptide RIP has been shown to prevent such infections by reducing the level of attachment of bacteria to surfaces. Here we tested the effect of RIP on adhesion properties of single bacterial cell by atomic force microscope (AFM). Atomic force images of single bacteria attached to the polystyrene were acquired in PBS solution in tapping mode. The developed computer program automatically processed images, extracted height profiles around the cell and calculated adhesion characteristics. We found that wild type *S. aureus* exhibit three different classes of adhesion: weak adhesion with small contact angle, strong adhesion with large contact angle and specific adhesion by pinning centers. When bacteria were treated with RIP, contact angles for weak adhesion remain the same, while contact angles for strong adhesion are smaller and adhesion by pinning centers do not exists. Therefore we show that: (i) RIP changes adhesion of single bacterial cells (ii) RIP eliminates certain types of adhesion; (iii) RIP does not change the weak adhesion mechanisms but reduces strong adhesion mechanisms; (iv) changes of bacterial cells adhesion could be quantified by static characteristic independent on loading rate.

L13 ANSWER 31 OF 35 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN

ACCESSION NUMBER: 2001:549728 BIOSIS

DOCUMENT NUMBER: PREV200100549728

TITLE: Methods and compositions for the treatment and prevention of **Staphylococcal** infections.

AUTHOR(S): **Balaban, Naomi** [Inventor, Reprint author];  
 Lerrick, James W. [Inventor]; Wright, Susan C. [Inventor]

CORPORATE SOURCE: Davis, CA, USA  
 ASSIGNEE: Panorama Research, Mountain View, CA, USA; The Regents of the University of California

PATENT INFORMATION: US 6291431 20010918

SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Sep. 18, 2001) Vol. 1250, No. 3. e-file.  
 CODEN: OGUPE7. ISSN: 0098-1133.

DOCUMENT TYPE: Patent

LANGUAGE: English

ENTRY DATE: Entered STN: 21 Nov 2001

Last Updated on STN: 25 Feb 2002

ED Entered STN: 21 Nov 2001

Last Updated on STN: 25 Feb 2002

AB Methods and compositions are provided for the treatment of **staphylococcal** infections.

L13 ANSWER 32 OF 35 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 2005-123072 [13] WPIX  
 CROSS REFERENCE: 1999-405112 [34]  
 DOC. NO. CPI: C2005-040866  
 TITLE: Preventing or treating bacterial infection caused by any bacteria species in which RNA III-activating protein (RAP) or its target molecule TRAP plays a role in pathogenesis by administering a RAP or TRAP type polypeptide.  
 DERWENT CLASS: B04 D16  
 INVENTOR(S): **BALABAN, N**  
 PATENT ASSIGNEE(S): (BALA-I) BALABAN N  
 COUNTRY COUNT: 108  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2005009396	A2	20050203 (200513)*	EN	82	
		RW: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW W: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005009396	A2	WO 2004-US2679	20040130

PRIORITY APPLN. INFO: US 2003-358448 20030203

AB WO2005009396 A UPAB: 20050224

NOVELTY - Preventing or treating bacterial infection, caused by any bacteria species in which RNA III-activating protein (RAP) or its target molecule TRAP plays a role in pathogenesis, comprises administering to a subject a RAP or TRAP type polypeptide to elicit an antibody response.

ACTIVITY - Antibacterial. No biological data given.

MECHANISM OF ACTION - Vaccine; RNA III inhibiting peptide.

USE - The method is useful in preventing or treating bacterial infection caused by any bacteria species in which RNA III-activating protein (RAP) or its target molecule TRAP plays a role in pathogenesis (claimed).

Dwg.0/14

ABEX UPTX: 20050224

ADMINISTRATION - Dosage comprises 0.1-500, preferably 12-100 mg/kg body weight. The composition is administered via oral or parenteral route.

L13 ANSWER 33 OF 35 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 2000-271380 [23] WPIX

DOC. NO. CPI: C2000-082872

TITLE: Novel target of RNAIII activating protein (TRAP) polypeptides and polynucleotides used to identify antagonists and inhibitors for use to treat bacterial infections.

DERWENT CLASS: B04 D16

INVENTOR(S): **BALABAN, N; GOLDKORN, T; NAHN, R; NAHN, R T**

PATENT ASSIGNEE(S): (REGC) UNIV CALIFORNIA; (BALA-I) BALABAN N; (GOLD-I)

GOLDKORN T

COUNTRY COUNT:

85

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2000015660	A1	20000323 (200023)*	EN 53		
RW:	AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL				
OA PT SD SE SL SZ UG ZW					
W:	AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD				
GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV					
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT					
UA UG UZ VN YU ZW					
AU 9964968	A	20000403 (200034)			
EP 1121380	A1	20010808 (200146)	EN		
R:	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT				
RO SE SI					
EP 1188831	A2	20020320 (200227)	EN		
R:	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT				
RO SE SI					
US 2002102271	A1	20020801 (200253)			
US 6689878	B2	20040210 (200413)			
US 6747129	B1	20040608 (200437)			

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000015660	A1	WO 1999-US21176	19990913
AU 9964968	A	AU 1999-64968	19990913
EP 1121380	A1	EP 1999-952912	19990913
		WO 1999-US21176	19990913
EP 1188831	A2 Div ex	EP 1999-952912	19990913
		EP 2001-122636	19990913
US 2002102271	A1 Provisional	US 1998-100415P	19980915
	Div ex	US 1999-393862	19990910
		US 2001-953780	20010912
US 6689878	B2 Provisional	US 1998-100415P	19980915
	Div ex	US 1999-393862	19990910
		US 2001-953780	20010912
US 6747129	B1 Provisional	US 1998-100415P	19980915
		US 1999-393862	19990910

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9964968	A Based on	WO 2000015660
EP 1121380	A1 Based on	WO 2000015660
EP 1188831	A2 Div ex	EP 1121380

PRIORITY APPLN. INFO: US 1999-393862P 19990910; US  
 1998-100415P 19980915; US  
 1999-393862 19990910; US  
 2001-953780 20010912

AB WO 2000015660 A UPAB: 20000725  
 NOVELTY - Isolated Staphylococcus aureus target of RNAlII activating protein (TRAP) polypeptides are new.

DETAILED DESCRIPTION - A novel isolated TRAP protein (I) has a

Entered Medline: 20031007

AB **Staphylococcus aureus** is a prevalent cause of bacterial infections associated with indwelling medical devices. RNA III inhibiting peptide (RIP) is known to inhibit *S. aureus* pathogenesis by disrupting quorum-sensing mechanisms. RIP was tested in the present study for its ability to inhibit *S. aureus* biofilm formation in a rat Dacron graft model. The activity of RIP was synergistic with those of antibiotics for the complete prevention of drug-resistant *S. aureus* infections.

L13 ANSWER 7 OF 35 MEDLINE on STN DUPLICATE 7  
 ACCESSION NUMBER: 2003377214 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12885754  
 TITLE: Prophylactic efficacy of topical temporin A and RNAIII-inhibiting peptide in a subcutaneous rat Pouch model of graft infection attributable to **staphylococci** with intermediate resistance to glycopeptides.  
 AUTHOR: Cirioni Oscar; Giacometti Andrea; Ghiselli Roberto; Dell'Acqua Giorgio; Gov Yael; Kamysz Wojciech; Lukasiak Jerzy; Mocchegiani Federico; Orlando Fiorenza; D'Amato Giuseppina; **Balaban Naomi**; Saba Vittorio; Scalise Giorgio  
 CORPORATE SOURCE: Institute of Infectious Diseases and Public Health, University of Ancona, Ancona, Italy.  
 SOURCE: Circulation, (2003 Aug 12) 108 (6) 767-71. Electronic Publication: 2003-07-28. Journal code: 0147763. ISSN: 1524-4539.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals  
 ENTRY MONTH: 200309  
 ENTRY DATE: Entered STN: 20030813  
                   Last Updated on STN: 20030918  
                   Entered Medline: 20030917  
 ED    Entered STN: 20030813  
       Last Updated on STN: 20030918  
       Entered Medline: 20030917  
 AB    BACKGROUND: Bacteria that adhere to implanted medical devices play an important role in industry and in modern medicine. **Staphylococci** are among the most common pathogens that cause biomaterial infections. Vascular prosthetic graft infection is one of the most feared complications that the vascular surgeon treats, frequently resulting in prolonged hospitalization, organ failure, amputation, and death. A rat model was used to investigate the topical efficacies of temporin A and the quorum-sensing inhibitor RNAIII-inhibiting protein (RIP) as prophylactic agents of vascular prosthetic graft infections caused by **Staphylococcus aureus** and **Staphylococcus epidermidis** with intermediate resistance to glycopeptides. METHODS AND RESULTS: Graft infections were established in the back subcutaneous tissue of adult male Wistar rats by implantation of Dacron prostheses 1 cm<sup>2</sup> followed by topical inoculation with 2x10<sup>(7)</sup> colony-forming units of bacterial strains. The study included, for each **staphylococcal** strain, a control group (no graft contamination), a contaminated group that did not receive antibiotic prophylaxis, and 6 contaminated groups that received grafts soaked with temporin A, RIP, rifampin, temporin A plus RIP, RIP plus rifampin, or temporin A plus RIP. The infection was evaluated by quantitative agar culture. When tested alone, temporin A and RIP showed comparable efficacies, and their efficacies were significantly higher than that of rifampin against both strains. All combinations showed efficacies

significantly higher than that of each single compound. The combinations of temporin A and RIP exerted the strongest antistaphylococcal efficacies, eliminating infection by 100%. CONCLUSIONS: The results of the present study make these molecules potentially useful for antimicrobial chemoprophylaxis in vascular surgery.

L13 ANSWER 8 OF 35 MEDLINE on STN DUPLICATE 8  
 ACCESSION NUMBER: 2003087147 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12599079  
 TITLE: Use of the quorum-sensing inhibitor RNAlII-inhibiting peptide to prevent biofilm formation in vivo by drug-resistant **Staphylococcus epidermidis**.  
 AUTHOR: Balaban Naomi; Giacometti Andrea; Cirioni Oscar; Gov Yael; Ghiselli Roberto; Mocchegiani Federico; Viticchi Claudio; Del Prete Maria Simona; Saba Vittorio; Scalise Giorgio; Dell'Acqua Giorgio  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel.. nbalaban@ucdavis.edu  
 SOURCE: Journal of infectious diseases, (2003 Feb 15) 187 (4) 625-30. Electronic Publication: 2003-02-07. Journal code: 0413675. ISSN: 0022-1899.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals  
 ENTRY MONTH: 200304  
 ENTRY DATE: Entered STN: 20030225  
                   Last Updated on STN: 20030402  
                   Entered Medline: 20030401  
 ED    Entered STN: 20030225  
       Last Updated on STN: 20030402  
       Entered Medline: 20030401  
 AB    **Staphylococcus epidermidis** is a frequent cause of infections associated with foreign bodies and indwelling medical devices. The bacteria are capable of surviving antibiotic treatment through encapsulation into biofilms. RNAlII-inhibiting peptide (RIP) is a heptapeptide that inhibits *S. aureus* pathogenesis by disrupting quorum-sensing mechanisms. In this study, RIP inhibited drug-resistant *S. epidermidis* biofilm formation through a mechanism similar to that evidenced for *S. aureus*. RIP is synergistic with antibiotics in eliminating 100% of graft-associated in vivo *S. epidermidis* infections, which suggests that RIP may be used to coat medical devices to prevent **staphylococcal** infections. Disruption of cell-cell communication can prevent infections associated with antibiotic-resistant strains.

L13 ANSWER 9 OF 35 MEDLINE on STN DUPLICATE 9  
 ACCESSION NUMBER: 2003337817 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12472801  
 TITLE: Prevention of **Staphylococcus aureus** biofilm on dialysis catheters and adherence to human cells.  
 AUTHOR: Balaban Naomi; Gov Yael; Bitler Arkady; Boelaert Johan R  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel.. nbalaban@ucdavis.edu  
 SOURCE: Kidney international, (2003 Jan) 63 (1) 340-5. Journal code: 0323470. ISSN: 0085-2538.  
 PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200403  
 ENTRY DATE: Entered STN: 20030722  
                   Last Updated on STN: 20040303  
                   Entered Medline: 20040302  
 ED    Entered STN: 20030722  
       Last Updated on STN: 20040303  
       Entered Medline: 20040302  
 AB    BACKGROUND: Dialysis patients, often carriers of **Staphylococcus aureus** in their nares, are at high risk of *S. aureus* infections. METHODS: We examined whether RNAlII inhibiting peptide (RIP), which interferes with quorum sensing mechanisms, reduces adherence of *S. aureus* to host cells and to dialysis catheter polymers *in vitro*. Adherence was tested by spectroscopy using safranin staining, by confocal scanning laser microscopy and by atomic force microscopy. RESULTS: RIP inhibited bacterial adherence to HaCat and HEp-2 cells and reduced adherence and biofilm formation not only on polystyrene, but also on both polyurethane- and silicone-made dialysis catheters, with a preponderant effect on silicone, to which bacteria were more adherent. CONCLUSION: RIP opens a new perspective in anti-*S. aureus* prophylaxis, particularly in dialysis patients.

L13 ANSWER 10 OF 35           MEDLINE on STN                   DUPLICATE 10  
 ACCESSION NUMBER: 2003301569    MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 12829282  
 TITLE: Characterization of RAP, a quorum sensing activator of **Staphylococcus aureus**.  
 AUTHOR: Korem Moshe; Sheoran Abhineet S; Gov Yael; Tzipori Saul; Borovok Ilya; Balaban Naomi  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Israel.  
 SOURCE: FEMS microbiology letters, (2003 Jun 27) 223 (2) 167-75.  
                   Journal code: 7705721. ISSN: 0378-1097.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200308  
 ENTRY DATE: Entered STN: 20030628  
                   Last Updated on STN: 20030816  
                   Entered Medline: 20030815

ED    Entered STN: 20030628  
       Last Updated on STN: 20030816  
       Entered Medline: 20030815  
 AB    **Staphylococcus aureus** are Gram-positive bacteria and cause diverse serious diseases in humans and animals through the production of toxins. The production of toxins is regulated by quorum sensing mechanisms, where proteins such as RNAlII activating protein (RAP) are secreted by the bacteria and induce virulence. Antibodies to RAP have been shown to protect mice from infection, but the molecular structure of RAP was not known and hindered vaccine development. To characterize RAP, recombinant protein was made and tested for its ability to induce genes important for pathogenesis (agr). In addition, monoclonal antibodies were produced to identify its cellular localization. Results shown here indicate that RAP is a 277-aa protein that is an ortholog of the ribosomal protein L2. Like the native molecule, recombinant RAP activates the production of RNAlII (encoded by agr). Using RAP specific monoclonal

antibodies we demonstrate that RAP is continuously secreted and while RAP is expressed also in other bacteria (like *Staphylococcus epidermidis*, *Staphylococcus xylosus* and *Escherichia coli*), it is secreted to the culture medium only by *S. aureus*. Our results show that the ribosomal protein L2 has an extraribosomal function and that when secreted RAP acts as an autoinducer of virulence to regulate *S. aureus* pathogenesis.

L13 ANSWER 11 OF 35 MEDLINE on STN DUPLICATE 11  
 ACCESSION NUMBER: 2001286612 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 11160124  
 TITLE: Regulation of *Staphylococcus aureus* pathogenesis via target of RNAIII-activating Protein (TRAP).  
 COMMENT: Erratum in: J Biol Chem 2001 Apr 13;276(15):12476  
 Erratum in: J Biol Chem 2001 Jun 8;276(23):20803  
 AUTHOR: Balaban N; Goldkorn T; Gov Y; Hirshberg M;  
 Koyfman N; Matthews H R; Nhan R T; Singh B; Uziel O  
 CORPORATE SOURCE: Departments of Pathology, Internal Medicine, and Biological Chemistry, University of California, Davis 95616, USA..  
 nbalaban@ucdavis.edu  
 SOURCE: Journal of biological chemistry, (2001 Jan 26) 276 (4) 2658-67.  
 Journal code: 2985121R. ISSN: 0021-9258.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 OTHER SOURCE: GENBANK-AF202641  
 ENTRY MONTH: 200106  
 ENTRY DATE: Entered STN: 20010625  
 Last Updated on STN: 20010723  
 Entered Medline: 20010621  
 ED Entered STN: 20010625  
 Last Updated on STN: 20010723  
 Entered Medline: 20010621  
 AB *Staphylococcus aureus* can cause disease through the production of toxins. Toxin production is autoinduced by the protein RNAIII-activating protein (RAP) and by the autoinducing peptide (AIP), and is inhibited by RNAIII-inhibiting peptide (RIP) and by inhibitory AIPs. RAP has been shown to be a useful vaccine target site, and RIP and inhibitory AIPs as therapeutic molecules to prevent and suppress *S. aureus* infections. Development of therapeutic strategies based on these molecules has been hindered by a lack of knowledge of the molecular mechanisms by which they activate or inhibit virulence. Here, we show that RAP specifically induces the phosphorylation of a novel 21-kDa protein, whereas RIP inhibits its phosphorylation. This protein was termed target of RAP (TRAP). The synthesis of the virulence regulatory molecule, RNAIII, is not activated by RAP in the trap mutant strain, suggesting that RAP activates RNAIII synthesis via TRAP. Phosphoamino acid analysis shows that TRAP is histidine-phosphorylated, suggesting that TRAP may be a sensor of RAP. AIPs up-regulate the synthesis of RNAIII also in trap mutant strains, suggesting that TRAP and AIPs activate RNAIII synthesis via distinct signal transduction pathways. Furthermore, TRAP phosphorylation is down-regulated in the presence of AIP, suggesting that a network of signal transduction pathways regulate *S. aureus* pathogenesis.

L13 ANSWER 12 OF 35 MEDLINE on STN DUPLICATE 12  
 ACCESSION NUMBER: 2001541408 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 11587789

TITLE: RNAlII inhibiting peptide (RIP), a global inhibitor of *Staphylococcus aureus* pathogenesis: structure and function analysis.  
 AUTHOR: Gov Y; Bitler A; Dell'Acqua G; Torres J V; **Balaban N**  
 CORPORATE SOURCE: Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel.  
 SOURCE: Peptides, (2001 Oct) 22 (10) 1609-20.  
 Journal code: 8008690. ISSN: 0196-9781.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200112  
 ENTRY DATE: Entered STN: 20011008  
 Last Updated on STN: 20020122  
 Entered Medline: 20011214  
 ED Entered STN: 20011008  
 Last Updated on STN: 20020122  
 Entered Medline: 20011214  
 AB *Staphylococcus aureus* are gram-positive bacteria that can cause serious diseases in humans and animals. *S. aureus* infections can be prevented by the heptapeptide RNAlII inhibiting peptide (RIP). RIP was originally isolated from culture supernatants of coagulase negative *staphylococci* presumed to be *S. xylosus*. The sequence of RIP was identified as YSPXTNF. Native RIP and its synthetic analogue YSPWTNF have been shown to be effective inhibitors of diseases caused by various strains of *S. aureus*, including, cellulitis, keratitis, septic arthritis, osteomyelitis and mastitis. RIP is therefore considered to be a global inhibitor of *S. aureus*. We show here that: 1) the amide form of RIP (YSPWTNF-NH<sub>2</sub>) is highly stable and is therefore the one recommended for use. 2) RIP inhibits *S. aureus* pathogenesis by inhibiting the synthesis of both agr transcripts RNAlII and RNAlII. 3) Although RIP inhibits agr, it also reduces bacterial adherence to mammalian cells and to plastic (tested on HEp2 cells and on polystyrene by fluorescence and atomic force microscopy), suggesting that RIP can be used safely as a therapeutic molecule. 4) RIP derivatives were designed and tested for their ability to inhibit RNAlII in vitro and cellulitis in vivo. Not all peptides that inhibited RNAlII also inhibited an infection in vivo, indicating that studies must be carried out in vivo before considering a peptide to be of therapeutic potential. 5) The RIP derivative containing Lysine and Isoleucine at positions 2 and 4, respectively, inhibited *S. aureus* infections in vivo (tested on cellulitis), suggesting that both RIP YSPWTNF and its derivative YKPITNF are effective inhibitors of infections caused by *S. aureus*.

L13 ANSWER 13 OF 35 MEDLINE on STN DUPLICATE 13  
 ACCESSION NUMBER: 2001558771 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 11252509  
 TITLE: Analytical chromatography for recovery of small amounts of *staphylococcal* enterotoxins from food.  
 AUTHOR: **Balaban N; Rasooly A**  
 CORPORATE SOURCE: Department of Medical Pathology, University of California, Davis 95616, USA.  
 SOURCE: International journal of food microbiology, (2001 Feb 28) 64 (1-2) 33-40.  
 Journal code: 8412849. ISSN: 0168-1605.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200110  
 ENTRY DATE: Entered STN: 20011022  
                   Last Updated on STN: 20011022  
                   Entered Medline: 20011018  
 ED    Entered STN: 20011022  
       Last Updated on STN: 20011022  
       Entered Medline: 20011018  
 AB    Sample preparation is an important element in the detection of toxins in food samples. In this work, a simple analytical sample preparation method for recovery of small amount of **staphylococcal** enterotoxin B (SEB) and **staphylococcal** enterotoxin A (SEA) in food samples was developed. Cation exchanger carboxymethylcellulose (CM) was used for small-scale batch chromatography isolation of SEB from infant formula and from mushrooms spiked with SEB. The resulting materials were analyzed for SEB by Western immunoblotting. Nearly all of the extraneous substances in the sample were removed by this procedure with no significant loss of the toxin. Using this method, even small amounts of SE (0.75 ng/g) can be recovered and immunologically analyzed by Western blotting or by ELISA with a very low background. Because this method is effective, rapid, simple and inexpensive, it has the potential to be a general method for the preparation of samples used for analysis of SEs.

L13 ANSWER 14 OF 35    MEDLINE on STN                   DUPLICATE 14  
 ACCESSION NUMBER: 2001075018    MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 11072116  
 TITLE: Prevention of diseases caused by **staphylococcus** aureus using the peptide RIP.  
 AUTHOR: Balaban N; Collins L V; Cullor J S; Hume E B;  
           Medina-Acosta E; Vieira da Motta O; O'Callaghan R; Rossitto P V; Shirtliff M E; Serafim da Silveira L; Tarkowski A;  
           Torres J V  
 CORPORATE SOURCE: Department of Medical Pathology, University of California,  
                   Davis 95616, USA.. nbalaban@ucdavis.edu  
 SOURCE: Peptides, (2000 Sep) 21 (9) 1301-11.  
                   Journal code: 8008690. ISSN: 0196-9781.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200101  
 ENTRY DATE: Entered STN: 20010322  
                   Last Updated on STN: 20010322  
                   Entered Medline: 20010104  
 ED    Entered STN: 20010322  
       Last Updated on STN: 20010322  
       Entered Medline: 20010104  
 AB    **Staphylococcus** aureus causes many diseases including cellulitis, keratitis, osteomyelitis, septic arthritis and mastitis. The heptapeptide RIP has been shown to prevent cellulitis in mice, which was induced by *S. aureus* strain Smith diffuse. Here we show that RIP can also significantly reduce the overall pathology and delay the onset of disease symptoms in several other models of *S. aureus* infections, including: keratitis (tested in rabbits against *S. aureus* 8325-4), osteomyelitis (tested in rabbits against *S. aureus* MS), mastitis (tested in cows against *S. aureus* Newbould 305, AE-1, and environmental infections) and septic arthritis (tested in mice against *S. aureus* LS-1). These findings substantiate that RIP is not strain specific in its inhibitory activity and that RIP is an effective

inhibitor of bacterial pathology at multiple body sites following diverse routes and doses of administration. These findings strongly evidence the potential value of RIP as a chemotherapeutic agent.

L13 ANSWER 15 OF 35 MEDLINE on STN DUPLICATE 15  
 ACCESSION NUMBER: 2000477584 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 11028954  
 TITLE: **Staphylococcal** enterotoxins.  
 AUTHOR: **Balaban N**; Rasooly A  
 CORPORATE SOURCE: Department of Medical Pathology, University of California, Davis 95616, USA.  
 SOURCE: International journal of food microbiology, (2000 Oct 1) 61 (1) 1-10. Ref: 84  
 Journal code: 8412849. ISSN: 0168-1605.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 General Review; (REVIEW)  
 (REVIEW, TUTORIAL)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 200102  
 ENTRY DATE: Entered STN: 20010322  
 Last Updated on STN: 20010322  
 Entered Medline: 20010215  
 ED Entered STN: 20010322  
 Last Updated on STN: 20010322  
 Entered Medline: 20010215  
 AB **Staphylococcus** aureus is a major human pathogen that produces a wide array of toxins, thus causing various types of disease symptoms. **Staphylococcal** enterotoxins (SEs), a family of nine major serological types of heat stable enterotoxins, are a leading cause of gastroenteritis resulting from consumption of contaminated food. In addition, SEs are powerful superantigens that stimulate non-specific T-cell proliferation. SEs share close phylogenetic relationships, with similar structures and activities. Here we review the structure and function of each known enterotoxin.

L13 ANSWER 16 OF 35 MEDLINE on STN DUPLICATE 16  
 ACCESSION NUMBER: 1998212065 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 9545222  
 TITLE: Autoinducer of virulence as a target for vaccine and therapy against **Staphylococcus** aureus.  
 COMMENT: Comment in: Science. 1998 Apr 17;280(5362):379. PubMed ID: 9575082  
 Comment in: Science. 2000 Jan 21;287(5452):391  
 AUTHOR: **Balaban N**; Goldkorn T; Nhan R T; Dang L B; Scott S; Ridgley R M; Rasooly A; Wright S C; Lerrick J W; Rasooly R; Carlson J R  
 CORPORATE SOURCE: Department of Medical Pathology, University of California, Davis, CA 95616, USA.. nbalaban@ucdavis.edu  
 CONTRACT NUMBER: AI40830 (NIAID)  
 SOURCE: Science, (1998 Apr 17) 280 (5362) 438-40.  
 Journal code: 0404511. ISSN: 0036-8075.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199805  
 ENTRY DATE: Entered STN: 19980514

Last Updated on STN: 20000218  
 Entered Medline: 19980507

ED Entered STN: 19980514  
 Last Updated on STN: 20000218  
 Entered Medline: 19980507

AB **Staphylococcus aureus** causes pathologies ranging from minor skin infections to life-threatening diseases. Pathogenic effects are largely due to production of bacterial toxin, which is regulated by an RNA molecule, RNAlII. The *S. aureus* protein called RAP (RNAlII activating protein) activates RNAlII, and a peptide called RIP (RNAlII inhibiting peptide), produced by a nonpathogenic bacteria, inhibits RNAlII. Mice vaccinated with RAP or treated with purified or synthetic RIP were protected from *S. aureus* pathology. Thus, these two molecules may provide useful approaches for the prevention and treatment of diseases caused by *S. aureus*.

L13 ANSWER 17 OF 35 MEDLINE on STN DUPLICATE 17  
 ACCESSION NUMBER: 95183517 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 7533297  
 TITLE: Autocrine regulation of toxin synthesis by **Staphylococcus aureus**.  
 AUTHOR: Balaban N; Novick R P  
 CORPORATE SOURCE: Skirball Institute, New York University Medical Center, NY 10016.  
 CONTRACT NUMBER: R01 AI30138 (NIAID)  
 SOURCE: Proceedings of the National Academy of Sciences of the United States of America, (1995 Feb 28) 92 (5) 1619-23.  
 Journal code: 7505876. ISSN: 0027-8424.  
 PUB. COUNTRY: United States  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199504  
 ENTRY DATE: Entered STN: 19950419  
 Last Updated on STN: 19960129  
 Entered Medline: 19950404

ED Entered STN: 19950419  
 Last Updated on STN: 19960129  
 Entered Medline: 19950404

AB **Staphylococcus aureus** is a major human pathogen causing diseases which range from minor skin infection to endocarditis and toxic shock syndrome. The pathogenesis of *S. aureus* is due primarily to the production of toxic exoproteins, whose synthesis is controlled by a global regulatory system, agr. We show here that agr is autoinduced by a proteinaceous factor produced and secreted by the bacteria and that it is inhibited by a peptide produced by an exoprotein-deficient *S. aureus* mutant strain. The inhibitor, RIP, competes with the activator, RAP, and may be a mutational derivative. Our results suggest two possible approaches, independent of antibiotics, to the control of *S. aureus* infections. RIP may prove useful as a direct inhibitor of virulence and RAP as a vaccine against the expression of agr-induced virulence factors; either could interfere with the ability of the bacteria to establish and maintain an infection.

L13 ANSWER 18 OF 35 MEDLINE on STN DUPLICATE 18  
 ACCESSION NUMBER: 96079506 MEDLINE  
 DOCUMENT NUMBER: PubMed ID: 8566701  
 TITLE: Translation of RNAlII, the **Staphylococcus aureus** agr regulatory RNA molecule, can be activated by a 3'-end

deletion.

AUTHOR: **Balaban N; Novick R P**  
 CORPORATE SOURCE: California Regional Primate Research Center, University of California, Davis 95616, USA.  
 CONTRACT NUMBER: R01-A130138  
 SOURCE: FEMS microbiology letters, (1995 Nov 1) 133 (1-2) 155-61.  
 Journal code: 7705721. ISSN: 0378-1097.  
 PUB. COUNTRY: Netherlands  
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
 LANGUAGE: English  
 FILE SEGMENT: Priority Journals  
 ENTRY MONTH: 199603  
 ENTRY DATE: Entered STN: 19960315  
 Last Updated on STN: 19960315  
 Entered Medline: 19960301

ED    Entered STN: 19960315  
 Last Updated on STN: 19960315  
 Entered Medline: 19960301

AB    RNAlII, an RNA molecule shown to encode delta-hemolysin and independently to regulate toxin synthesis in **Staphylococcus aureus**, is transcribed at the mid-exponential phase of growth, while its target genes are activated 2 h later, at the post-exponential phase of growth. We show here that the translation of RNAlII to the 26-amino acid peptide delta-hemolysin is delayed by 1 h, and that this delay is abolished when the 3'-end of this molecule is deleted. We suggest that structural changes of RNAlII to a translatable form of the molecule precede its regulation of target gene expression.

L13 ANSWER 19 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:104508 CAPLUS  
 TITLE: Genotype distribution of *Candida albicans* isolates by 25S intron analysis with regard to invasiveness  
 AUTHOR(S): Karahan, Z. C.; Gueriz, H.; Agirbasli, H.; **Balaban, N.; Goecmen, J. S.; Aysev, D.; Akar, N.**  
 CORPORATE SOURCE: Division of Pediatric Molecular Pathology and Genetics, Faculty of Medicine, Ankara University, Ankara, Turk.  
 SOURCE: Mycoses (2004), 47(11-12), 465-469  
 CODEN: MYCSEU; ISSN: 0933-7407  
 PUBLISHER: Blackwell Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED    Entered STN: 07 Feb 2005

AB    The aim of this study was to genotype *Candida albicans* strains isolated from patients with invasive and non-invasive deep-seated infections. For this purpose, 301 *C. albicans* isolates (81 invasive and 220 non-invasive) were genotyped by using specific PCR primers designed to span the transposable group I intron of the 25S rDNA gene. Fifty-three of the 81 invasive isolates were genotype A (65.4%), eight were genotype B (9.9%) and 20 were genotype C (24.7%), while 98 of the 220 non-invasive isolates were genotype A (44.6%), 46 were genotype B (20.9%) and 76 were genotype C (34.5%). Genotype A was more prevalent among invasive isolates and genotypes B and C were more prevalent among non-invasive isolates ( $P = 0.0046$ ). Genotypes D and E which represent *C. dubliniensis* were not found. These results indicate that there may be a relationship between *C. albicans* genotypes and invasiveness; genotype A being more invasive than others. The presence or absence of the transposable group I intron in the 25S rDNA gene may be important in determining the invasiveness of *C. albicans*.

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2003:603706 CAPLUS  
 DOCUMENT NUMBER: 139:349264  
 TITLE: Antioxidant activity of seminal plasma in fertile and infertile men  
 AUTHOR(S): Koca, Y.; Oezdal, Oe. L.; Celik, M.; Uenal, S.;  
**Balaban, N.**  
 CORPORATE SOURCE: Department of Biochemistry, Ankara Numune Education and Research Hospital, Ankara, Turk.  
 SOURCE: Archives of Andrology (2003), 49(5), 355-359  
 CODEN: ARANDR; ISSN: 0148-5016  
 PUBLISHER: Taylor & Francis, Inc.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ED Entered STN: 06 Aug 2003

AB This study was conducted to evaluate and compare the total antioxidant capacity among fertile and infertile men. Thirty infertile patients and 20 fertility-proven healthy donors with normal sperm anal. were included in the study. Total antioxidant capacity, zinc and fructose levels of seminal plasma, and various sperm parameters were compared among fertile controls and idiopathic infertility patients prospectively. The mean antioxidant capacity of fertile controls ( $2.02\pm0.16$  mmol/L) was significantly higher than that of the infertile patients group ( $1.78\pm0.23$  mmol/L) ( $p<.01$ ). Furthermore, asthenozoospermic and asthenoteratozoospermic groups had significantly lower mean antioxidant values ( $1.73\pm0.11$  and  $1.64\pm0.13$ , resp.) when compared to fertile control group ( $p<.01$ ). The mean fructose level was significantly lower in the fertile control group and mean zinc level was significantly lower in the entire infertile group. On the other hand, antioxidant capacity is pos. correlated to sperm motility ( $p=.001$ ). Decreased antioxidant capacity was associated with impaired sperm function as a result of either increased ROS production or insufficient antioxidant capacity.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 21 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2001:720315 CAPLUS  
 TITLE: Peptides: bacteria's point of view  
 AUTHOR(S): **Balaban, N.**; Koyfman, N.  
 CORPORATE SOURCE: Sackler School of Medicine, Department of Human Microbiology, Tel Aviv University, Tel Aviv-Jaffa, Israel  
 SOURCE: Peptides (New York, NY, United States) (2001), 22(10), 1517-1518  
 CODEN: PPTDD5; ISSN: 0196-9781  
 PUBLISHER: Elsevier Science Inc.  
 DOCUMENT TYPE: Journal; Miscellaneous  
 LANGUAGE: English  
 ED Entered STN: 03 Oct 2001  
 AB Unavailable

L13 ANSWER 22 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2001:475214 CAPLUS  
 DOCUMENT NUMBER: 136:213089  
 TITLE: Comparison of different methods used in the diagnosis of Clostridium difficile associated infections

molecular weight of 21 kDa, and is obtained from a *Staphylococcus* bacteria. INDEPENDENT CLAIMS are also included for the following:

- (1) an isolated nucleic acid molecule (NAM) (II) consisting of a coding sequence for (I);
- (2) an antibody immunoreactive with TRAP;
- (3) a device (e.g. a catheter, a needle, a surgical instrument, and a tampon) comprising a surface coating composition comprising a TRAP inhibitor;
- (4) a vaccine comprising TRAP; and
- (5) identifying biologically active agents that modulate TRAP activity, comprising combining a candidate agent with TRAP and RAP, and detecting (by detecting of TRAP phosphorylation or by detecting production of RNAlII) the inhibition of TRAP activity in production of *Staphylococcus* virulence factors;
- (6) treating *Staphylococcus* bacteria, comprising administering to a patient a therapeutically effective amount of a TRAP inhibitory agent (e.g. an anti- TRAP antibody); and
- (7) preventing *S. aureus* infection, comprising administering to a subject a compound which generates an immune response thereby creating antibodies which bind RAP.

ACTIVITY - Antibacterial. No biological data given.

MECHANISM OF ACTION - Vaccine. No biological data given.

USE - The target RNAlII activating protein (TRAP) DNA sequences may be used as probes for identifying TRAP coding sequences of other strains of *Staphylococcus* or other bacteria. They may also be used to detect the TRAP nucleic acids in biological samples, and to produce the polypeptide recombinantly. The polypeptides are used to raise antibodies, and in assays to identify inhibitory compounds (claimed) which are then used to treat *Staphylococcal* infections. The TRAP polypeptides may be used for vaccination (claimed). Agents which inhibit the expression of TRAP or which inhibit its activity are candidates for the development of treatments for infection of pathogenic *Staphylococcus*. The pharmaceutical formulations are used for suppressing the production of toxins by a *Staphylococcus* bacteria, especially *S. aureus*.

ADVANTAGE - None given.

DESCRIPTION OF DRAWING(S) - The figure is a simplified diagram summarizing the role of target RNAlII activating protein (TRAP), RNAlII activating protein (RAP), and RNAlII in the production of toxins in *Staphylococcus*.

Dwg.1/17

ABEX UPTX: 20000516

ADMINISTRATION - Human dosage levels are a daily dose of 0.1-500 mg/kg body weight, preferably 6-200 mg/kg, and especially 12-100 mg/kg.

EXAMPLE - In vivo phosphorylation assays were carried out using wild type target RNAlII activating protein (TRAP) polypeptides. Wild type early exponential *S. aureus* cells were incubated for 1 hour in phosphate free buffer (PFB) together with <sup>32</sup>P, with RNAlII activating protein (RAP) in phosphate buffered saline (PBS), or with only PBS as a control. After 1 hours, cells were collected, and applied to a SDS-PAGE gel, and the gel electrophoresed and autoradiographed. The autoradiogram was scanned and the density of the bands determined. The results show that RAP causes the specific phosphorylation of TRAP.

L13 ANSWER 34 OF 35 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

ACCESSION NUMBER: 1999-405112 [34] WPIX

CROSS REFERENCE: 2005-123072 [13]

DOC. NO. CPI: C1999-119587

TITLE: RNAlII activating protein antagonist.

DERWENT CLASS: B04 D16  
 INVENTOR(S): **BALABAN, N**; LARRICK, J W; WRIGHT, S C  
 PATENT ASSIGNEE(S): (PANO-N) PANORAMA RES INC; (REGC) UNIV CALIFORNIA;  
 (BALA-I) BALABAN N; (PANO-N) PANORAMA RES  
 COUNTRY COUNT: 85  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9932133	A1	19990701	(199934)*	EN	33
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW					
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW					
AU 9920050	A	19990712	(199950)		
EP 1037650	A1	20000927	(200048)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 6291431	B1	20010918	(200157)		
US 2004072748	A1	20040415	(200426)		
US 2004077534	A1	20040422	(200428)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9932133	A1	WO 1998-US27091	19981218
AU 9920050	A	AU 1999-20050	19981218
EP 1037650	A1	EP 1998-964810	19981218
		WO 1998-US27091	19981218
US 6291431	B1 Provisional	US 1997-68094P	19971219
		US 1998-54331	19980402
US 2004072748	A1 Provisional	US 1997-68094P	19971219
	CIP of	US 1998-54331	19980402
	CIP of	US 2001-839695	20010419
		US 2003-358448	20030203
US 2004077534	A1 Provisional	US 1997-68094P	19971219
	CIP of	US 1998-54331	19980402
		US 2001-839695	20010419

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9920050	A Based on	WO 9932133
EP 1037650	A1 Based on	WO 9932133
US 2004072748	A1 CIP of	US 6291431
US 2004077534	A1 CIP of	US 6291431

PRIORITY APPLN. INFO: US 1998-54331 19980402; US  
 1997-68094P 19971219; US  
 2001-839695 20010419; US  
 2003-358448 20030203

AB WO 9932133 A UPAB: 20050224

NOVELTY - RNAIII activating protein (RAP) antagonist (I) is new.  
 DETAILED DESCRIPTION - A composition comprising a polypeptide comprising an amino acid sequence of general formula (I) is new:  
 Y(K/S)PXTNF (I)

X = C, W or I

INDEPENDENT CLAIMS are also included for the following:

- (1) a composition comprising a nucleic acid molecule encoding a polypeptide as above; and
- (2) a composition comprising an antibody which specifically binds to the polypeptide above.

ACTIVITY - Antibacterial; Immunoprotective.

MECHANISM OF ACTION - RAP Antagonist.

USE - A peptide, termed RNAlII inhibiting peptide (RIP) is produced by a non-pathogenic strain of *Staphylococcus aureus* mutated by nitrosoguanidine. RIP competes with RAP for the activation of RNAlII, and thus inhibits toxin production by *S. aureus*. The polypeptide composition is useful for treating a host for staphylococcal infection (claimed). A RAP receptor antagonist, e.g. a polypeptide, peptidomimetic or antibody can be used to treat staphylococcal infection (claimed). Antibodies can be screened for the ability to block the binding of a ligand to RAP or RIP and/or for other properties, e.g. the ability to protect *in vivo* against *S. aureus* infection.

Dwg.0/5

ABEX

UPTX: 19990825

ADMINISTRATION - The composition is administered after onset of symptoms or prophylactically (claimed).

EXAMPLE - Purified and synthetic RIP were tested for their ability to suppress infection in the murine cutaneous *Staphylococcus aureus* infection model. Smith Diffuse *S. aureus* ( $8.5 \times 10^7$  -  $1.4 \times 10^9$ ) were incubated in the presence of RIP which was purified from 5 ml postexponential culture broth of ATCC 55619 in saline, or with saline only as a control, with 0.5 mg synthetic RIP (Pep) in a final DMSO (in saline) solution of 3%, or only with 3% DMSO in saline as a control for 30 minutes at 37°C. The bacteria + RIP, bacteria + Pep, bacteria + saline or bacteria + DMSO mixture was injected subcutaneously together with cytodex beads (1 mg) into 8 week old male hairless immunocompetent mice to induce a local infection. The size of the lesion was measured daily. For these experiments mice were pre-screened to eliminate individuals with anti-RAP antibodies. A fixed amount of RIP (approximately 10 mg) attenuated infections caused by increasing inocula of the Smith Diffuse strain of *S. aureus*. Of the animals that were injected with  $8.5 \times 10^7$  bacteria together with RIP, three of four developed no infection at all, as compared to only one of four control animals that were injected with the bacteria and saline. When an increased inoculum of bacteria was used ( $1.4 \times 10^8$  cells per injection) 4/8 animals were protected, whereas the remaining four developed a lesion that was 55% smaller than that of control animals. All (7/7) of the control animals challenged with SD and saline developed a lesion. When a higher number of bacteria was used ( $1.4 \times 10^9$ ) the synthetic RIP (0.5 mg Pep) protected animals, where 90% (9/10) of the animals showed no sign of disease.

L13 ANSWER 35 OF 35 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
 ACCESSION NUMBER: 1996-209319 [21] WPIX  
 CROSS REFERENCE: 1998-018426 [02]; 2003-074097 [07]; 2003-606005 [57]  
 DOC. NO. CPI: C1996-066766  
 TITLE: Peptide that inhibits expression of virulence factors in *Staphylococcus aureus* - useful for treating or preventing *Staph. aureus* infections, partic. in immuno compromised patients, and in vaccines when coupled to immunogen.  
 DERWENT CLASS: B04 D16  
 INVENTOR(S): BALABAN, N; JI, G; NOVICK, R P  
 PATENT ASSIGNEE(S): (UYNY) UNIV NEW YORK STATE  
 COUNTRY COUNT: 19

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9610579	A1	19960411 (199621)*	EN 44		
		RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE			
		W: AU CA JP			
AU 9538259	A	19960426 (199631)			

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9610579	A1	WO 1995-US12708	19951002
AU 9538259	A	AU 1995-38259	19951002

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 9538259	A Based on	WO 9610579

PRIORITY APPLN. INFO: US 1994-318499 19941004

AB WO 9610579 A UPAB: 20030906

Peptide (I) that inhibits agr-rnaIII transcription in *Staphylococcus aureus* is new. Also claimed are: (1) a peptide (II) that activates agr-rnaIII transcription in *S. aureus*; (2) an antibody (Ab1) that binds specifically to (II); (3) purified, isolated protein (III) with same activity as (II); and (4) antibodies (Ab2) that are immunoreactive with (III).

USE - (I), Ab1 and Ab2 can be used to block the expression of virulence factors produced by *S. aureus*, i.e. to treat or prevent *S. aureus* infections, partic. in immunocompromised patients. (II) and (III), when coupled to a suitable immunogen, can also be used in preventive vaccines.

Dwg.0/11

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